

## REMARKS

Claims 1, 2, 4-10, 13, 14, and 16-20 are under consideration. Claims 1, 2, and 7 have been amended. No new matter is added. Reconsideration of claims 1-10 and 12-20 is respectfully requested. Claims 3, 11, 12, and 15 are cancelled.

### Rejections Under 35 U.S.C. 112

Claims 1, 3-6, 12, 16, 17 and 18 were rejected under 35 U.S.C. 112, second paragraph as being indefinite, in reference to the term “a plurality of large cultivation tanks aerated with air having a volume capacity of about four hundred liters” in claim 1.

In response, claim 1 has been amended to more particularly claim that each tank has a volume of four hundred liters in the invention. Therefore, the above rejection of claim 1 and dependent claims 3-5, 16, 17 and 18 should be withdrawn.

### Rejection Under 35 U.S.C. 103

The Action rejected claims 1-10, 12-15 and 17-20 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,358,858 to Meng et al in view of U.S. Patent No. 3,195,271 to Golueke et al.

Regarding claims 7,9 and 10, The Action states that:

*Meng teaches a method of cultivating seaweeds in land based sea water ponds by producing spores and sporelings in cultures maintained in a laboratory facility (Meng Col 2 line 22); Growing the sporelings in a suspension culture under optimal growth conditions (Meng Col. 2 line 25-26); Transferring the matured sporelings to large cultivation tanks that are aerated (Meng Col. 3 line 21 “fresh air”) to allow rapid growth (Meng Col. 2 line 39); and Harvesting; drying; and grinding (Meng Col 2 line 4-6) to result in a product for human consumption or pharmaceutical use (Meng Col 1 line 13)*

The Action admits “ Meng is silent on a plurality of cultivation tanks and the use of seawater as a

medium". (emphasis added) but concludes that "it would have been obvious to one of ordinary skill in the art to modify the teachings of Meng at the time of the invention with a plurality of tanks since the modification is merely the duplication of a known element for a multiple effect performing the same intended function-Modified to increase production yields. This limitation does not present a patentably distinct limitation over the prior art. *In re Harza*, 274 F 2d 669,671, 124 USPQ 378, 380 (CCPA 1960)."

The Action then continues to state that "Golueke teaches that it is old and notoriously well-known to cultivate the seaweed in seawater that is aerated (Gouleke Col 1 line 67 and Col. 2 line 33). It would have been obvious... to further modify the teachings of Meng with the teachings of Golueke at the time of the invention since the salinity is known to promote desired seaweed development and to inhibit the growth of other undesired algae as taught by Golueke (Golueke Col 2. line 6). One of ordinary skill in the art would be motivated to modify the teachings of Meng with the teachings of Gouleke also based the location of the facility and readily available abundance of seawater."

The Action states:

Regarding claim 20, Meng as modified teaches the seaweed product of porphyra (Meng Col. 1 line 31 and Col 4 line 66).

The Action states

-Regarding Claim 1, a) Meng teaches a system for land based cultivation of seaweeds by phycological laboratory facilities suitable to produce spores and sporelings in cultures (Meng Col.3 line 6 and Col.4 line 65-66); -a plurality of sleeve (Meng Col.2 line 31) housed in temperature and controlled land based facilities to allow the maturation of the sporelings (Meng Col. 1 line 66-68); -a plurality of small aerated inoculation tanks (Meng Col 2 line 34) enriched with defined nutrients under optimal conditions, to allow the mature sporelings to grow into seaweed pieces; and a plurality of large aerated cultivation tanks to transfer the seaweed pieces into to grow to full size (Meng Col 2 line 40).

The Action further states that b) Meng teaches the importance of aeration, but is silent on the use of seawater and aeration beginning at the culturing phase. How ever, "Golueke teaches that it is old and notoriously well-known to cultivate the seaweed in seawater that is aerated (Gouleke Col 1 line 67 and Fig 1

#21). *It would have been obvious... to further modify the teachings of Meng with the teachings of Golueke at the time of the invention for a means of providing ideal artificial growth conditions by simulating some of the natural environmental conditions in which sea weed grows.*

The Action admits that c) *"Meng is silent on the plurality of tanks. However, it would have been obvious to modify teachings of Meng at the time of the invention by a mere duplication of an element for a multiple effect performing the same intended function. The plurality of tanks enables mass production in a cost effective manner and enables one to control different environmental conditions, stages of development, and nutrients in various tanks."*

The Action states:

*"Golueke is cited merely to teach that it is old and notoriously well-known to cultivate the seaweed in seawater and that there is known success in culturing in seawater and that it is known to produce seaweed on a commercial scale. It is irrelevant whether Golueke teaches the addition of sewage. The addition of sewage is merely the selection of an additional nutrient source. Changes to sizes and concentrations that easily derived through routine tests and experimentation do not present patentably distinct limitations."*

The Action states, regarding Claim 2 that Meng as modified teaches a land based technology comprising a seeding unit producing spores (Meng Col 3 line 6); sporeling production unit (Meng Col 3 line 11); maturation unit (Meng Col 3 line 16); cultivation unit (Meng Col 3, line 20); harvesting; drying; and grinding (Meng Col 2 line 4-6).

The Action States:

*Regarding Claim 3, Meng as modified teaches the seaweed species grown in land based seawater ponds is Porphyra (Meng Col 1, line 31).*

*Regarding Claim 4, Meng as modified teaches the nutrients added to the seawater are designed to produce a plurality of seaweeds that are used as neutraceuticals, food components, pharmaceuticals or cosmetics (Meng Col 1, line 13).*

*Regarding Claim 5, Meng as modified teaches production of spores in petri dishes (Men Col.3 line 6); cultivation of sporelings in sleeves under environmentally controlled conditions (MengCol 3 line 16); growth in small and large tanks (Meng Col 3 line 20 and Col 2 line 34-41). Meng is silent on separating the inoculation and harvesting into separate ponds. However, it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention since the modification is merely the separation of known steps into replicated ponds for the efficient management of the system of having a continuous production at different stages and for more control over the environmental conditions at particular points in production.*

*Regarding Claim 6, Meng as modified is inherently programmable for production throughout the year since Meng teaches controlling the light and the temperature conditions for the cultivating seaweed.*

*Regarding Claim 8, Meng as modified teaches the large cultivation tank contains suitable nutrients to ensure high yields of seaweed products (Golueke Col 2 line 34).*

The Action states:

*Regarding Claim 11, 13 and 17, Meng as modified is silent on the small aerated inoculation tanks have the volume capacity of about 40 liters, and the large aerated cultivation tanks have the volume capacity of about 4000 liters; varying sizes including 30- 500 m<sup>2</sup> or the volume capacity of each of the sleeves is about 20 liters, of the tanks used in stage 1, is about 40 liters, of the large tanks used in stage 2 is about 4000 liters, of inoculation ponds in stage 3 is about 30 m<sup>2</sup> and the cultivation ponds used in stage 4 ponds of 500 m<sup>2</sup>. It would have been obvious to one of ordinary skill in the art to modify the teachings of at the time of the invention through routine tests and experimentation for efficient and optimized production ....land base.*

*Regarding claim 12, Meng as modified teaches the importance of nutrients (Golueke Col 2, line 34) and N:P nutrients are notoriously well known fertilizers, but Meng is silent on seawater being enriched with 0.5 mM NH<sub>4</sub>Cl and 0.05 mM Na<sub>2</sub>PO<sub>4</sub>, at least two times a week for at least three weeks. It would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention through routine laboratory*

*tests and experimentation to derive the desired fertilizer application quantity and frequency based on different seasons of the year or the seaweeds developmental stage."*

*Regarding claim 14, Meng as modified teaches the drying unit comprises centrifugation drums or low temperature ovens (Meng Col 2 line 49).*

*Regarding claim 15, Meng as modified teaches the seaweed species grown in land based seawater ponds include Porphyra (Meng 1 line 31)*

*Regarding claims 18 and 19, Meng as modified teaches the seaweed product of Porphyra (Meng Col 1 line 31 and Col 4 line 66)*

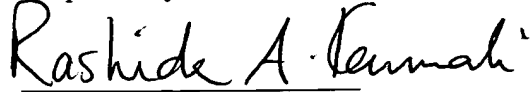
*The Action states: "Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No 5,358,858 to Meng et al in view of U.S. Patent No 3,195,271 to Golueke et al as applied to claim 1 above and further in view of Techniques of Laboratory Cultivation of marine Algae, University of South Florida, St Petersburg Dept of Marine Science, Nov 1983, page 42, 6, 7, 1 and 40....Meng as modified teaches the land based temperature controlled facility housing the plurality of sleeves, but does not implicitly teach a [comprises] chiller to regulate the temperature (Meng Col 4 line 68 and Col 3 line 123). However Techniques... teaches that chillers are old and notoriously well known selected pieces of equipment to achieve desired controlled temperature(Techniques ... pg 40)....the modification is merely the selection of a known mechanical equipment for [means] energy efficient means of achieving the controlled temperatures.*

**In response to all of the above rejections, applicant has amended claims 1, 2 and 7 as per the Examiner's instructions to incorporate the limitations of claim 12, and cancelled claim 12. Therefore all of the above rejections should be withdrawn and notice of allowance should be issued.**

Applicant thanks the Examiner for her constructive suggestions to make the claims allowable.

Date: November 29, 2005

Respectfully submitted,

A handwritten signature in black ink that reads "Rashida A. Karmali". The signature is written in a cursive style with a horizontal line underneath the name.

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11/29/05

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